Ecology Summary Report for 2002 and 2003

Multiple programs within the Department of Ecology are involved in pesticide-related activities. Ecology works with National Marine Fisheries Service and other federal and state agencies to reduce the impacts of pesticide applications to salmonids under the Federal Endangered Species Act. The agency participates in an interagency urban pesticide committee and the Washington State Healthy Schools Initiative. It is responsible for oversight of contaminated areas requiring cleanup or monitoring and including areas contaminated with pesticides. Ecology's pollution prevention and sustainability efforts emphasize prevention of the overuse and misuse of pesticides.

This report presents data for three programs: Spill Prevention, Preparedness, and Response Program; Toxics Cleanup Program; and Water Quality Program. These programs track data on pesticide spills, on the cleanup of pesticide contamination, and on the use of pesticides to protect water quality. This report also provides a brief description of the Surface Water Monitoring Program for Pesticides in Salmonid-Bearing Streams, April to December, 2003.

Spill Prevention, Preparedness, and Response Program: Pesticide-Related Incidents

The Spill Program responds to pesticide-related complaints and is responsible for ensuring that damage from a spill is contained as much as possible and cleaned up as quickly as possible. Pesticide-related spills and complaints are tracked in the program database. Ecology uses the data to identify where additional education is necessary to reduce pesticide impacts on human health and the environment. Pesticide-contaminated sites undergoing evaluation and/or remediation are not included in these data (See Toxics Cleanup Program section below for information on remediation sites). Summaries of each of the Spill program pesticide-related complaints for 2002 and 2003 are provided in Appendix C.

Table 20 lists the types of pesticide-related complaints received from 2000 to 2003.

Table 20. Ecology Pesticide-Related Complaints, 2000 - 2003

Type of complaint*	2000	2001	2002	2003
Pesticides threatening ground or surface water	20	11	23	13
Pesticide disposal or waste concern	14	14	12	12
Spills and fires	10	1	12	5
Unsafe pesticide storage or handling	13	6	11	10

* *Numbers may be greater than the number of complaints for each year as complaints may involve more than one category.*

The number of pesticide-related complaints involving threats to air, water, and/or soil totaled 46 in 2002 and 33 in 2003. Spill Program response to complaints may include follow-up by phone, referral back to involved parties for voluntary cleanup, referral to another agency, or issuance of a notice or requirement for cleanup. Complaints that are resolved during the initial contact and do not require technical assistance, investigation, or referral are classified as "No follow-up". An

example of a "No follow-up" complaint would be a request for information. Investigations are initiated for complaints requiring field work or technical assistance.

Ecology responded within 24 hours in 42 (91%) of the 46 complaints in 2002 and 18 (54%) of the 33 complaints in 2003. Ecology investigated 37 of the 46 complaints in 2002 and 22 of the 33 complaints in 2003.

Of the 79 pesticide-related complaints received by Ecology during 2002 and 2003 (46 in 2002 and 33 in 2003):

- Nine occurred in the agricultural environment (5 in 2002 and 4 in 2003).
- Twenty-six involved commercial or industrial activities (18 and 8).
- Eighteen were reported by private citizens (12 and 6).
- Sixteen stemmed from residential activities (10 and 6).
- Six involved a combination of chemicals containing a pesticide (2 and 4).
- Six resulted in potential exposure to humans (4 and 2).
- Fifteen required some form of cleanup or removal of materials (10 and 5).
- Two were referred to the Toxics Cleanup Program (2 and 0).

After Ecology Spill staff respond and stabilize the initial emergency, the case is closed if it is determined that there are no long-term impacts. If there are long-term impacts, the case is referred to another program within the agency. When indicated, Ecology refers complaints to another state or local agency that can more directly manage the situation. In 2002, the Spill Program referred seven complaints involving pesticides to other agencies including Department of Transportation, city and county public works departments, and WSDA. In 2003, the Spill Program referred four complaints to other agencies. The following are two examples:

In October 2002, Ecology's Spill response staff received a complaint that vandals had dumped a pesticide, later confirmed as Diazinon, into a golf and country club irrigation pond in King County. Responders to the site found milky water and dead ducks. Involved in the investigation were Ecology, King County Sheriffs Office, and Washington State Fish and Wildlife. The cleanup contractor boomed the ponds and prevented contaminated water from overflowing to Hamm Creek. Pond water was pumped into the sanitary sewer system. Tainted soil and vegetation were disposed as hazardous waste. The site was referred to Toxics Cleanup Program for cleanup of pond sediments. U.S. Fish and Wildlife followed-up on potential criminal action concerning a disgruntled, recently fired employee.

In May 2003, Ecology's Spill response staff were notified that a chemical transport truck carrying pesticides overturned on a major highway in Stevens County. Washington State Patrol (Incident Command), Ecology, Spokane Hazardous Materials Team, Stevens County Sheriffs, Stevens County Fire Department, and Department of Transportation responded. The product spilled to the roadway was contained and cleaned up. An entry team encapsulated in level B protective gear entered the over-turned trailer, separated and removed all ruptured containers, and cleaned the spilled products. The highway was reopened after 8 hours.

Toxics Cleanup Program: Contaminated Sites Containing Pesticides

Ecology is responsible for oversight of contaminated areas requiring cleanup or monitoring. These sites may have become contaminated from sources such as leaking underground petroleum tanks, historic or current pesticide use, spills, or industrial processes. Ecology placed seven pesticide-contaminated sites on the cleanup list in 2002 (Appendix E, Map A) and placed 11 sites on the cleanup list in 2003 (Appendix E, Map B). In 2002, two sites each were added in Chelan and Thurston Counties and one each in King, Pierce, and Skagit Counties. In 2003, two sites were added in Benton County and one site each in Chelan, Clallam, Clark, Franklin, King, Lewis, Okanogan, Skagit, and Snohomish Counties.

The Toxics Cleanup Program maps in Appendix E show pesticide-contaminated sites by area and identification tracking number. A preliminary investigation was conducted at each site. The sites are designated as 1) active sites still undergoing cleanup, or 2) non-active sites that were cleaned up or required no further action. In 2002, all seven of the added sites were designated as active. In 2003, 10 sites were active and one site received a no-further-action designation.

In 2002, there were a cumulative total of 136 sites on the pesticide-contaminated sites list (Appendix E, Map C). Of those, 89 sites remained active in the cleanup process at the year's end (Appendix E, Map D).

In 2003, there was a cumulative total of 144 pesticide-contaminated sites identified (Appendix E, Map E). Of those, 95 sites remained active in the cleanup process at year's end (Appendix E, Map F). These numbers for 2002 and 2003 are summarized in Table 21.

Table 21. Pesticide-Contaminated Sites Statewide, 2002 and 2003

Pesticide-contaminated sites	2002	2003
New sites added	7	11
Cumulative for the year	136	144
Active in cleanup process at the end of the year	89	95

Water Quality Program: Aquatic Pesticide Permit

Ecology is delegated by the U.S. EPA to implement all federal water pollution control laws and regulations through the state's laws. These include the issuance of permits for the use of aquatic pesticides to protect water quality. The permitting process ensures that applications of chemicals are sparingly and properly applied, reducing the potential for exposure to natural resources and people. Aquatic pesticide use during the 2003 application season is reported in the following sections. This is the first year aquatic pesticide permit data were tabulated and analyzed for this purpose.

Nuisance Plant and Algae Control NPDES Permit
The Nuisance Plant and Algae Control General NPDES Permit is issued to homeowners and lake advocacy groups for products used to control algae blooms and invasive milfoil or native nuisance weeds in lakes and ponds.

All lakes covered under this general permit during the 2003 application season were located in Ecology's Southwest and Northwest regions. When applying for coverage, the applicator is required to estimate the amount of product to be used and the total area to be treated.

The product totals are listed in Table 22. The amounts of herbicide applied are listed individually by county and body of water in Appendix G.

Table 22. Nuisance Plant and Algae Control NPDES Permit, 2003

Product	Gallons	Pounds
Diquat	276.5	
Endothall	847.5	
2,4-D (BEE)		1,500
2,4-D (DMA)	129.3	
Fluridone	19.5	
Glyphosate	46.1	
Total product applied	1,318.9	1,500

Noxious Weed NPDES Permit
The Noxious Weed General NPDES Permit is issued to government agencies, homeowners, lake advocacy groups, and marinas to treat lakes, rivers, and estuarine environments for noxious, non-native plant species. The treated areas are located throughout Washington State. The permits are issued by WSDA in partnership with the Department of Ecology. The product totals are listed in Table 23.

Table 23. Noxious Weed NPDES Permit, 2003

Product	Gallons	Pounds
Glyphosate	17,921.85	2.47
Diquat	394.86	194.40
2,4-D	646.74	12,870.00
Fluridone	3.04	4,167.00
Endothall	12.50	
Total product applied	18,978.99	17,233.87

Irrigation District NPDES Permit
The Irrigation NPDES Permit is issued for products to control weeds and algae in irrigation systems. The permit was issued to 16 of the 97 Washington irrigation districts during the 2003 application season. The 16 districts include 81 percent of the total irrigated land in Washington. The product totals are listed in Table 24.

Table 24. Irrigation District NPDES Permit, 2003

Product	Gallons	Pounds
Xylene	19,200	
Chelated copper*	548	
Copper sulfate*		159,867
Acrolein	36,993	
Total product applied	56,741	159,867

** When chelated copper and copper sulfate are converted into elemental copper, the amount of copper applied equals 40,456 pounds.*

Invasive Moth NPDES Permit
This individual permit was issued to the Department of Agriculture for invasive moth control in July 2004. Treatment data will be available in 2005.

Fish Management NPDES Permit
The Fish Management NPDES Permit is issued to the Department of Fish and Wildlife for fish management in Washington lakes. Currently, Fish and Wildlife is allowed to use only the product rotenone for fish management. The seven lakes in Table 25 were reported as treated during the spring and fall of 2003. All are in eastern Washington.

Table 25. Fish Management NPDES Permit, 2003

Water body	Gallons	Pounds
Davis Lake	30	2,000
Martha Lake	30	1,200
Williams Lake	15	26,894
Fishtrap Lake	50	12,045
Dusty Lake	10	35,860
Blue Lake	30	9,000
Hog Canyon Lake/Hog Lake		1,595
Total product (Rotenone) applied	165	88,594

Mosquito General NPDES Permit
To prepare for the arrival West Nile virus, the number of groups treating for mosquitoes in Washington State rapidly increased. Ecology allows mosquito control districts and government agencies to apply for coverage under a general permit through DOH. Some groups apply for coverage directly through Ecology's regional offices. All groups are required to submit the previous year's pesticide use data by February first of the following year. Table 26 summarizes pesticide totals statewide from the 2003 application season.

Table 26. Mosquito General NPDES Permit, 2003

Product type	Gallons	Pounds
Bti granular/briquettes		8,082.69
Bti liquid	8,163.09	
Bacillus spaericus (H-5a5b)		606.22
Methoprene briquettes		7,748.82
Methoprene liquid	531.23	
Methoprene granular		204.00
Methoprene pellets		556.60
Monomolecular film	22.12	
Paraffinic white mineral oil	95.24	
Total product applied	8,811.68	17,198.33

Oyster Grower's NPDES Permit

The Oyster Grower's Permit is an individual permit issued directly to the Willapa Bay/Grays Harbor Oyster Growers Association by Ecology's Southwest Regional Office. It allows the use of carbaryl, an insecticide in the carbamate family, to control burrowing shrimp in oyster beds. This permit was issued in 2002 and expires January 1, 2006. The total amount of carbaryl used during the 2003 season is shown in Table 27. When the 4993 pounds of formulated Sevin 80SP is converted into active ingredient, the total amount of carbaryl applied is 3994.4 pounds.

Table 27. Oyster Grower's NPDES Permit, 2003

Product Type	Pounds	Acres
Carbaryl	4993	509.7

Surface Water Monitoring

A report is now available on the first-year (2003) results in a multi-year monitoring effort to characterize pesticide concentrations in salmon-bearing surface waters. Urban runoff was investigated in Thornton Creek, located in the Cedar-Sammamish watershed. Agricultural land use was evaluated through sampling of the Marion Drain, Spring Creek, and Sulphur Creek waste-way drainages of the Lower Yakima watershed.

Concentrations of all chemicals were generally low and close to analytical detection limits. 2,4-D was the most commonly detected chemical; however, pentachlorophenol was most commonly detected in the urban watershed. Endosulfan sulfate, azinphos-methyl, chlorpyrifos, diazinon, and 4,4'-DDE results were above the numeric component of selected standards.
The report is available at http://www.ecy.wa.gov/biblio/0403048.html.

Ecology Educational and Prevention Activities

In 2003, Ecology used Environmental Protection Agency pollution grant money to create an educational video on urban pesticides for middle and high school students. The video, Healthy Solutions, addresses the potential risks of using pesticides and the benefits of integrated pest management. Internationally known John deGraaf, author of 'Affluenza', produced the video. It is currently being distributed to schools by the Office of Superintendent of Public Instruction and to local health departments by the Department of Health.

Ecology hosts the UPEST web site created through a cooperative effort by Ecology, DOH, WSDA, Washington State University Cooperative Extension, and EPA Region 10. The UPEST web site was created two years ago to help schools address pest problems in ways that protect children from pesticide exposure. The site promotes integrated pest management (IPM) and supports schools in adopting an IPM approach to pest control. The site receives approximately 1000 hits per month. Information available at the site includes:

- Why IPM is a wise approach to pest control in schools.
- Sample IPM policies and manuals for Washington schools.
- Suggestions for responding to specific pest problems using IPM.
- Resources for finding information about toxicity of pesticides.
- Current Washington legislation that pertains to pesticide use in schools.

UPEST is located at: http://www.ecy.wa.gov/programs/wq/nonpoint/upest/why_ipm.html.